Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

THE EMPIRICAL THEORY OF CAUSATION.

THE theory of causation first set forth by David Hume has attracted more attention and led to more discussion than any other philosophical doctrine of modern times. Before the appearance of that theory, philosophers had commonly held that the relation between cause and effect is a necessary one, or, in more explicit terms, that when a cause is present, and no counteracting cause interferes, an event of some kind necessarily takes place, and when no cause is present no event can take place. Hume attacked this theory by denying the necessary character of the relation, and affirming that we only know that cause and effect are invariably conjoined, and that our belief that the conjunction is necessary is due to a constant association of ideas. Our knowledge of causation, he maintains, is derived from experience, and experience only shows one event following another, without giving any grounds for believing that it follows necessarily.

The sceptical character of the theory is obvious, for it seems to invalidate or render doubtful a large part of human knowledge. Causation is one of the most important and all-pervading facts in the universe, and is the basis of our most important reasonings ; and if our knowledge of it is in any way uncertain, the conclusions we draw by means of it must be uncertain also. Yet the theory has been widely accepted, especially by those who seek to derive all our knowledge from experience ; and though often attacked and critcised, it has never yet been really refuted. I propose, therefore, to examine it anew and to consider what arguments have been made in its favor and what others may be urged against it, and thus to ascertain what truth, if any, there may be in the theory, and whether Hume's reasonings compel us to modify in any essential respect the doctrine of causation commonly held before his time.

The first requisite for the criticism of any theory is a careful presentation of the theory itself and of the arguments in its support, so that we may know precisely what we have to criticize ;

for otherwise our criticism will be ineffective. To present Hume's theory of causation, however, in a clear and intelligible manner is not so easy a task as might be wished; for the author himself gave two different expositions of it, the first in his *Treatise of Human Nature*, published in 1739, and the second in his *Enquiry Concerning Human Understanding*, published in 1748. As regards causation, however, there is not much difference between the doctrine of the two works; though, speaking generally, we may say that the *Treatise* excels in fullness of argument, and the *Enquiry* in clearness of expression. I shall therefore cite both works indifferently, and in such a manner as to present the author's reasoning in the clearest and strongest light. But it is necessary to take account not only of Hume himself, but also of later thinkers who have adopted his views, and especially of John Stuart Mill, whose *Logic* and other works have deservedly had so great an influence on the world's thought, and whose theory of causation, though differing, as we shall see, from Hume's, is nevertheless derived in the main from it. Both thinkers maintain that all our knowledge is derived from experience, and that association is the leading factor in forming our derivative and complex ideas, including the idea of causation.

Hume's own statement of his theory occurs repeatedly in both his principal works; but perhaps the clearest expression of it is in the following passages from the *Enquiry*:

"All events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem *conjoined*, but never *connected*. . . . But when one particular species of event has always, in all instances, been conjoined with another, we make no longer any scruple of foretelling one upon the appearance of the other. . . . We then call the one object, *Cause;* the other, *Effect*. . . . Similar objects are always conjoined with similar. Of this we have experience. Suitably to this experience, therefore, we may define a cause to be *an object, followed by another, and where all the objects similar to the first are followed by objects similar to the second.* Or, in other words, *where, if the first object had not been, the second never had existed.* The appearance of a cause always conveys the mind, by a customary transition, to the idea of the effect. Of this also we have experience. We may, therefore, suitably to this experience, form another definition of cause, and call it, *an object followed by another, and whose appearance always conveys the thought to that other*. . . . We may consider the relation of cause and effect in either of these two lights; but beyond these, we have no idea of it."[1]

Causation, then, according to this definition of it, has two aspects, one objective, the other subjective. Objectively, it is a constant succession of events in the real world, which succession is made known to us by experience; subjectively, it is a constant association between the ideas of those objects, the idea of one invariably suggesting that of the other. In the *Treatise* the subjective aspect is made still more prominent, the supposed necessary connection being attributed exclusively to the mind, and identified with the constant association of the ideas. "Upon the whole," says Hume, "necessity is something that exists in the mind, not in objects; nor is it possible for us ever to form the most distant idea of it, considered as a quality in bodies. Either we have no idea of necessity, or necessity is nothing but that determination of the thought to pass from causes to effects, and from effects to causes, according to their experienced union."[2]

Such is Hume's own version of his theory, and the association philosophers generally have adopted it with little qualification. Thomas Brown, indeed, while agreeing with Hume that causation is merely an invariable succession of events, held that our belief in that succession was an original principle of our mental nature. Mill's view, as first stated in his *Logic*, is precisely like Hume's; though, as was natural in a logical treatise, he gives special prominence to the objective side of the relation. "To certain facts," he says, "certain facts always do, and, as we believe, will continue to, succeed. The invariable antecedent is termed the cause; the invariable consequent, the effect. And the universality of the law of causation consists in this, that every consequent is connected in this manner with some particular antecedent, or set of antecedents."[1] But he is led almost immediately to modify this view by adding an important qualification, the real meaning and effect of which are much greater than he supposed. He sees that the definition of causation which he has given is liable to the objection urged by Reid, that, according to that doctrine, day must be the cause of night, and night the cause of day, since the succession of these phenomena is invariable so far as human experience extends. This objection he endeavors to meet by saying that in a case of real causation the sequence of events is not only invariable, but also unconditional. "This," he says, "is what writers mean when they say that the notion of cause involves the idea of necessity. If there be any meaning which confessedly belongs to the term necessity, it is *unconditionalness*. That which is necessary, that which *must* be, means that which will be, whatever supposition we may make in regard to all other things. The succession of day and night evidently is not necessary in this sense. It is conditional on the occurrence of other antecedents. . . . We may define, therefore, the cause of a phenomenon to be the antecedents, or the concurrence of antecedents, on which it is invariably and *unconditionally* consequent."[2]

---

[1] *Enquiry*, sec. vii, part ii.

[2] *Treatise*, bk. i, part iii, sec. xiv, ¶ 22.

Mill then goes on to argue that our knowledge that one sequence is conditional and another unconditional, is derived from experience, the succession of day and night, for instance, being conditioned on the sun's light and the earth's rotation, which are facts of experience. But how do we know that there is such a thing as unconditional sequence? If, as Mill virtually admits, unconditional and necessary are synonymous terms, I cannot see in what respect his theory of causation, as finally stated, differs from the traditional view. If, as he says, necessary means unconditional, it would seem to follow that unconditional means necessary, and therefore that unconditional sequence is necessary sequence. And Hume himself, in an unguarded moment, has made an admission quite as damaging as Mill's to the theory they both profess. In one of the passages above quoted he defines a cause to be "an object, followed by another, and where all the objects, similar to the first, are followed by objects similar to the second. Or, in other words, where, if the first object had not been, the second never had existed." Now, the first of these definitions is strictly in harmony with his whole theory and with all his arguments ; but the second is identical with the traditional doctrine that nothing can begin to exist without a cause.

---

[1] *System of Logic*, bk. iii, ch. v, § 2.

[2] *Logic*, bk. iii, ch. v, § 6.

That two such thinkers as Hume and Mill should be led to make admissions so inconsistent with the theory they professed, is very remarkable, and shows clearly that there is some defect in the theory, as Hume first stated it, which must be corrected in order to make the theory fit the facts. It is possible, indeed, that Hume's own admission that "if the first object had not been, the second never had existed," may have been due to a slip of attention combined with a reminiscence of earlier views ; though it is strange that it should occur in the very act of defining causation, and in immediate juxtaposition with another definition utterly irreconcilable with it. But, whatever may be the case with Hume himself, it can hardly be doubted that the modification of the theory introduced by Mill was due to a consciousness on his part that the theory as originally propounded was inconsistent with observed facts, and that some modification or addition was necessary if the theory was to be maintained. The objection urged by Reid was from Hume's standpoint unanswerable, and the theory had to be so altered or amended as to meet that and all other objections which might be urged against it. Yet, in order to meet them, Mill found it necessary to introduce an element which cannot be harmonized with the rest of the theory, and which differs little, if at all, from the old doctrine, that when a cause is present, and no counteracting cause interferes, an event of some kind necessarily takes place. That neither Hume nor Mill realized the true character and force of the admissions is clear ; but the effect of the admissions is none the less damaging. In its objective aspect, then, it is plain that Hume's theory as originally stated is not tenable, and can only be made so by modifications which essentially alter it, and can hardly be reconciled with it.

But there is another point which needs to be dwelt upon briefly, though it is not an objection to the empirical doctrine itself. I refer to the fact that Hume and all who have adopted his view of causation have confounded the law of causation with what is commonly called the 'uniformity of nature,' but which I prefer to call the law of similarity, or law of generic identity—that what is true of a thing is true of its like. Hume's confusion of this law with that of causation is obvious from the passages above quoted, but I will quote one more in which the confusion is specially apparent.

"It seems evident that, if all the scenes of nature were continually shifted in such a manner that no two events bore any resemblance to each other, but every object was entirely new, without any similitude to whatever had been seen before, we should never in that case have attained the least idea of necessity, or of a connection among these objects. We might say, upon such a supposition, that one object or event has followed another; not that one was produced by the other. The relation of cause and effect must be utterly unknown to mankind. . . Our idea, therefore, of necessity and causation arises entirely from the uniformity observable in the operations of nature, where similar objects are constantly conjoined together, and the mind is determined by custom to infer the one from the appearance of the other."[1] That Mill's view was essentially the same is evident both from his general treatment of the subject and from explicit statements. He speaks, for instance of "the uniformity in the succession of events, otherwise called the law of causation."[2] And, so far as I have observed, all who agree with Hume's general theory have made the same mistake. For a mistake it is, as a brief consideration of the subject will show.

The principle of the uniformity of nature includes two distinct truths: first, that there are in nature similar cases, and second, that whatever is true of a thing is true of all similar things. The first of these is a truth of experience; for we should never know there were similar things in the world if we had not observed them. The other principle, that whatever is true of a thing is true of its like, is an identical proposition; for surely that is what we mean by likeness, or similarity. When we say that two things are alike, we mean that what is true of one is also true of the other ; and it is impossible to give the word 'like' or 'similar' any other meaning. It is probably true, indeed, that there are no two cases in nature whose similarity is perfect ; for, as Mill remarks, the course of nature, though in some respects uniform, is in others infinitely various. But when two things are only partially alike, what is true of one is true of the other in so far as they are alike ; so that the principle is of universal application. Hume, indeed, tries to throw doubt on the law of uniformity by remarking that the course of nature might change, so that the law would no longer be true.[1] To which I reply that the course of nature could only change in accordance with the laws of causation and of uniformity, and consequently that the change could not invalidate those laws. We need have no hesitation, therefore, in assuming the law of uniformity, or similarity, as an infallible principle, both in the world of thought and in the world of reality.

---

[1] *Enquiry*, sec. viii, part i.

[2] *Logic*, bk. iii, ch. xxi, § 4.

But how can any one in his senses mistake similarity for causation? The law of causation is that whatever begins to exist must have a cause, while the law of similarity is that whatever is true of a thing is also true of its like ; and what resemblance or connection is there between the two principles? None at all, obviously. We may, indeed, put the two together, and thus obtain the additional truth that like causes produce like effects ; but as this principle is evidently a compound of the other two, it ought not to be mistaken for either of them. Yet this third principle is apparently what Mill refers to when he speaks of "the uniformity in the succession of events, otherwise called the law of causation," though elsewhere Mill has repeatedly defined the law of causation correctly as the law that whatever begins to exist must have a cause. That the two principles are radically different, is evident from the fact that we can conceive a world in which there should never be two causes alike and therefore never two events alike ; yet every event in that world would have its cause as surely as in this world. Causation, therefore, is one thing, and the uniformity of nature is another ; and the confounding of the two by Hume, in which other associationists have followed him, is one of his chief mistakes, and, I suspect, the parent of other mistakes.[1]

---

[1] *Treatise*, bk. i, part iii, sec. vi, ¶ 5.

But it is time to come to closer quarters with the theory we are discussing. We have thus far considered it mainly in its objective aspect, as the statement of a law of nature, and have found it inadequate to account for known facts, unless so modified as to include elements inconsistent with it. We must now examine more particularly the arguments urged in its favor, so as to ascertain whether we are obliged to accept the theory either in its original or in a modified form. The problem that Hume has to solve is to account for the element of necessity in the causal relation as we conceive it. He denies, indeed, that the necessity really exists, but he admits that we believe it to exist; and a considerable part of his ingenious reasoning is devoted to showing how that belief can be accounted for in accordance with his theory.

Why then do we believe that everything that has a beginning must necessarily have a cause, and that a given cause will always necessarily be followed by the same effect? If, as some thinkers maintain, reason guarantees us certain necessary and universal truths, of which the law of causation is one, we need seek no further, but may rest in the guarantee thus given. But Hume denies that we have any such power of rational intuition. He affirms, as "obvious principles:" "first, that reason alone can never give rise to any original idea, and secondly, that reason, as distinguished from experience, can never make us conclude that a cause or productive quality is absolutely requisite to every beginning of existence."[2] Our belief in causation, then, according to Hume, is not intuitive, and he clearly shows that it is not demonstrative. Certain earlier thinkers had attempted to prove by demonstration that every event must have a cause; but Hume shows that their arguments are fallacious, since they all assume the very principle to be demonstrated. If, then, our knowledge of causation is neither intuitive nor demonstrative, it must be derived from experience; and Hume, therefore, undertakes to show how the derivation takes place.

---

[1] The confusion here pointed out was noticed by McCosh in his *Examination of J. S. Mill's Philosophy*, chap. xiii.

[2] *Treatise*, bk. i, part iii, sec. xiv.

According to the theory of knowledge maintained by Hume, all our ideas are derived originally from impressions of sense, and therefore, if we wish to know the real nature of any idea, we must trace it back to the impression from which it is derived. And he expressly affirms that "if you cannot point out *any such impression*, you may be certain you are mistaken when you imagine you have *any such idea*."[1] Hence, in order to find the origin and real nature of the idea of cause, we must trace it back to the impression from which we originally obtained it; yet, when we consider our experience of causes, we find that in no case do our senses perceive any necessary connection between a cause and its effect, but only a constant conjunction; we see one event follow another, but we never see nor hear nor feel any connection between them. But since we cannot get the idea from any single impression of sense, its origin must be sought elsewhere; and Hume thinks it arises from the repetition of impressions in the way which he thus describes: "We remember to have had frequent instances of the existence of one species of objects; and also remember that the individuals of another species of objects have always attended them, and have existed in a regular order of contiguity and succession with regard to them. Thus we remember to have seen that species of object we call *flame*, and to have felt that species of sensation we call *heat*. We likewise call to mind their constant conjunction in all past instances. Without any farther ceremony we call the one *cause* and the other *effect*, and infer the existence of the one from that of the other."[2]

But what is the ground of the inference we thus draw? Hume is obliged to admit that, on his principles, there is no logical ground for it, and that the inference is not made by reason, but by imagination. In other words, the so-called inference is not a logical process, but a mere association of ideas, which brings up the idea of the effect whenever we observe the cause or recall the idea of it in memory. But we not only have an idea of the effect, but also believe that the effeet will actually appear; and we wish to know the foundation of that belief. The belief is the vital element in the case, and unless Hume can account for it, his theory of causation is a failure. To meet the difficulty, he advances a new and peculiar theory of belief, which we must now proceed to examine.

---

[1] *Treatise*, bk. i, part ii, sec. v. ¶ 28.

[2] *Treatise*, bk. i, part iii, sec. vi.

What do we mean when we say we believe that the sun will rise to-morrow? The belief does not consist in the mere idea; for we can just as easily have the idea of the sun's not rising, which, however, we do not believe. The belief, therefore, must consist in the manner of conceiving the idea, and, according to Hume, it is merely the greater force, liveliness, or vividness of the idea which we believe, as compared with that which we do not believe, and this greater force or vividness is what distinguishes the ideas of the judgment from the fictions of the imagination. He maintains that in imagination there is no belief, while in impressions of sense, in memory, and in the judgments of reason there is belief. I believe that I am now writing; I believe that I met a certain man yesterday whom I now remember, and I believe that the sun will rise to-morrow; but I do not believe that the centaur which I imagine ever existed or can exist. Hence Hume concludes that the difference between belief and the absence of belief is virtually the same as the difference between memory and imagination. But, on comparing these two faculties, he recognizes no essential difference between them, except the greater vividness of the ideas of memory; whence he concludes that this greater vividness is what constitutes belief. "Thus it appears," he says, "that the *belief* or *assent*, which always attends the memory and senses, is nothing but the vivacity of those perceptions they present; and that this alone distinguishes them from the imagination."[1]

But what constitutes belief in a future event, which we neither see nor remember now? To answer this question, Hume reminds us that all our judgments about causes and effects are based on some impression of sense or some idea of memory. The fictions of imagination cannot serve as a basis of reasoning, which must always be founded on some immediate perception or some remembered fact, else it would be merely hypothetical, and no true source of belief. Now Hume maintains that, since the judgments of reason respecting causes and effects are thus based on impressions of sense or ideas of memory, they derive from those sources a share of that force or vividness that distinguishes those faculties, and thus become matters of belief. And so he concludes that "an opinion, therefore, or belief may be most accurately defined, *a lively idea related to, or associated with, a present impression.*"[1]

---

[1] *Treatise*, bk. i, part iii, sec. v.

Such is Hume's fantastic theory of belief; and everyone who reads the exposition of it for the first time must feel, I should think, how far it carries him from the world of reality. All his successors in the association school, I believe, have rejected the theory, and with good reason. Belief is a fact of consciousness, and the comparative vividness of ideas is also a fact of consciousness; and everyone who consults his own consciousness will see at once that the two phenomena are very far from being the same.

But it is necessary to point out the flaw in Hume's reasoning, which lies in the assumption that belief is not present in imagination. Belief, he says, attends the impressions of sense, the ideas of memory and the judgments of reason, but does not attend the ideas of imagination. In fact, however, belief is no less present in imagination than in memory and sense, the only difference being in the fact believed. Hume tells me that I believe there is a table before me, and that the sun rose yesterday and will rise again to-morrow, but I do not believe there is any such thing as a centaur. But a truer statement would be that I believe there is a table before me, and that the sun rose yesterday and will rise to-morrow, but I believe the centaur to be an affection of my own mind and not a reality. Nor is it any answer to this argument to say that what is present in imagination is not belief but disbelief, for disbelief is as truly belief as any other; it is belief in a negative proposition, so that it is indifferent whether I say, I disbelieve in the reality of the centaur or, I believe that the centaur is not real. Thus belief attends the ideas of imagination no less than those of memory, though the object of belief is different.

---

[1] *Treatise*, bk. i, part iii, sec. vii.

Hume's theory, therefore, being based on a misapprehension of fact, and representing belief as something radically different from what it really is, is wholly untenable.

Yet, as above remarked, our belief that the effect is sure to follow the cause is the main fact to be accounted for in a theory of causation ; and a theory which fails at this vital point must be abandoned. We find, however, that Hume's successors in the association school, while adopting his view of causation, have uniformly rejected his theory of belief; and we must therefore inquire what theory of belief they hold, and whether they have been more successful than Hume himself in explaining our belief in the causal nexus. James Mill, in his *Analysis of the Phenomena of the Human Mind*, took the ground that belief is nothing but an inseparable association of ideas ; but his son, John Stuart Mill, clearly shows the falsity of that theory, the decisive argument being that, if the theory were true, there would be no difference between believing the affirmative and believing the negative of the same proposition, since the association must be equally inseparable in either case. J. S. Mill himself, in an able note to his father's *Analysis*, reviews that theory and others that had been advanced in the endeavor to derive belief from something else, but rejects them all, and expresses the opinion that the state of mind we call belief is ultimate and primordial.[1] With that opinion I agree, and I think it is now generally held by philosophers and psychologists.

But though Mill rejected the doctrine that belief is nothing but an inseparable association of ideas, he nevertheless held that association can generate belief, and that our belief in the causal nexus is to be referred to that source. "There are," he says, "innumerable cases of belief for which no cause can be assigned, except that something has created so strong an association between two ideas that the person cannot separate them in thought. . . . When two things have long been habitually thought of together, and never apart, until the association between the ideas has become so strong that we have great difficulty, or cannot succeed at all, in separating them, there is a strong tendency to believe that the facts are conjoined in reality; and when the association is closer still, that their conjunction is what is called necessary."[1] And elsewhere he says: "We cannot conceive time or space as having an end, because the idea of any portion whatever of time or space is inseparably associated with the idea of a time or space beyond it. We cannot conceive two and two as five, because an inseparable association compels us to conceive it as four. . . . We cannot conceive two straight lines as enclosing a space, because enclosing a space means approaching and meeting a second time; and the mental image of two straight lines which have once met, is inseparably associated with the representation of them as diverging."[2]

---

[1] James Mill, *Analysis*, vol. i, p. 402, note.

Such, then, is the mental law by which Mill would account for our belief in causation and other so-called necessary truths. It will be noticed that in one respect he goes beyond Hume, namely, in ascribing our knowledge of the mathematical axioms to experience. Hume regarded mathematical propositions as certain and demonstratively true, because he held that they were concerned solely with relations between ideas; but Mill, who regarded mathematical relations as objective facts, maintained that we learn the axioms by experience, and that our belief in their necessity arises from the inseparable association of the corresponding ideas. That our belief in the causal nexus had the same origin, Mill, like Hume, was firmly persuaded; and we have now to inquire whether that opinion is true.

That there are some associations in our minds which are inseparable, there can be no doubt. Thus James Mill reminds us that we cannot conceive color without extension, nor solidity without figure, and doubtless other cases might be mentioned; but I deny that such associations can generate belief. There are only two ways by which we can acquire any belief whatever: by intuition and by inference from other beliefs. Even our belief in testimony is of inferential origin; we believe what a person tells us because we have reason to think that he speaks the truth. But from mere ideas and their association we can get nothing but ideas, however constant and long-continued the association may be; and if belief is not present at the beginning of the association, it cannot appear at the end. I cannot help thinking that, in maintaining that association can generate belief, Mill was under the influence of his father's doctrine that inseparable association *is* belief. He had rejected that doctrine, to be sure, and had adopted the true view that belief is a primordial mental state, but he failed to follow out this view to its logical consequences.

---

[1] Note to James Mill's *Analysis*, vol. i, p. 405.

[2] *Examination of Sir Wm. Hamilton's Philosophy*, First Am. ed., vol. i, p. 89.

If now we examine the cases of association on which Mill lays so much stress, we shall find, I think, either that they are due to something in the nature of things, or else that the association is not really inseparable. Thus we cannot think of color without extension, because the sensation of color cannot be given us by anything but extended objects; and we cannot think of solidity without figure, because figure is an essential attribute of bodies, the only solid things we know or can conceive. So the divergence of two straight lines from a common point seems to me an inherent property of the lines themselves; they can have but one point in common, and hence we necessarily conceive them as diverging. But in the case of mathematical axioms generally, I cannot admit that the association of ideas is either inseparable or invariable. Take, for instance, the arithmetical truth that two and two are four, or any similar relation of numbers. Of course, if we ask ourselves how many are two and two, we invariably answer 'four'; but that is not the question. The question is whether, when we see or think of two numbers together, we always think of their sum; and I do not find that this is true. In the case of figures, which represent numbers, it certainly is not true. If, for instance, we see 7 and 5 written near each other we do not always think of 12, which is their sum; on the contrary, we are sometimes led to subtract the 5 from the 7, and sometimes to multiply the two numbers together, while in many cases, perhaps in most, we perform no operation at all with them. Take, again, the geometrical axiom that a straight line is the shortest distance between two points. If there were an inseparable association in this case, we could not think of a straight line between two points, together with a curved or broken line between the same two points, without thinking that the straight line is the shortest. But, in that case, we could never see a triangle without thinking that any one of its sides is shorter than the other two, nor of a semi-circle without thinking that the diameter is shorter than the semi-circumference; but assuredly we do not so think except occasionally. Nor can I agree with Mill that the reason why we cannot conceive space as having an end, is that the idea of any portion of space is inseparably associated with the idea of another space beyond it. When I am sitting in my room, for instance, and attending exclusively to things in the room, I cannot perceive that I have any idea of any space outside of my room. Moreover, if Mill's view is correct, it must follow that we cannot think of space except as infinite; for if we cannot think of a portion of space without thinking of another space beyond it, then for the same reason we cannot think of the space beyond without thinking of another space beyond that, and so on to infinity. In fact, however, when we think of any portion of space our thoughts do not, as a rule, go beyond that particular portion, and the thought of the infinity of space occurs to us only rarely.

But we must leave these side-issues, and come to the main question with which we are here concerned, namely, whether our belief that every event must have a cause is due to an inseparable association of the corresponding ideas. That this is the essential point in Hume's theory of causation, is evident from the passages already quoted from his works. He does not, like the Mills, use the word 'inseparable' to characterize the association, but calls it constant, customary or invariable; but that is only a difference of terminology, his view being really the same as theirs. James Mill's statement of the theory is the most unqualified, bordering upon extravagance. "In no instance," he says, "is this inseparable association more perfect, or its consequences more important, than in that between an event and its antecedent. We cannot think of the one without thinking of the other."[1] "We can no more have the idea of an event, without having the ideas of its antecedents and its consequents, than we can have the idea and not have it at the same time. It is utterly impossible for me to have the visible idea of a rose, without the idea of its having grown from the ground, which is its antecedent; it is utterly impossible for me to have the idea of it without the ideas of its consistence, its smell, its gravity and so on, which are its consequents." [1] J. S. Mill adopted his father's view without essential change, so that it is unnecessary to quote anything on the subject from him. Thus the doctrine alike of Hume and of his followers is that there is an invariable and inseparable association between the idea of a cause and the idea of its effect, so that when one of these ideas is present to the mind, the other immediately arises with it; and this invariable association is what leads us to believe that the cause and effect are necessarily related in fact.

---

[1] *Analysis*, vol. i, p. 351.

Now here again I deny the invariability of the association. There is an invariable association between the objective facts, but there is no such invariable association between the subjective ideas. The association of the ideas is occasional only, and in the majority of cases does not take place at all. In most cases when we think of a cause, we do *not* think of its effect, and when we think of an effect, we do *not* think of its cause. This is the general rule, and the cases in which the association does take place are exceptional. A few examples, I think, will prove this beyond a doubt. Take, for instance, Hume's remark that "having found in many instances, that any two kinds of objects—flame and heat, snow and cold—have always been conjoined together; if flame or snow be presented anew to the senses, the mind is carried by custom to expect heat or cold, and to *believe* that such a quality does exist, and will discover itself upon a nearer approach." [2] In my experience I do not find that this is always or usually the case. When, for instance, I see a burning building at a considerable distance, I think of the loss of property, of the danger to human life, or of the weird interest of the scene, but very rarely of the heat which the fire produces. Neither do I think of heat, as a rule, when I see a flaming gas jet or an electric light. Nor do I always think of cold when I see snowflakes falling, especially if I am in a warm place myself. As for James Mill's remark

[1] *Analysis*, vol. i, p. 336.

[2] *Enquiry*, sec. v, part i, ¶ 8.

about the rose, that seems to me still further from the truth. When I see a rose, I hardly ever think of its having grown from the ground; I often think of its smell, though I doubt if I always do; and I never think of its gravity unless I take the rose in my hand. Other examples might be adduced. Suppose, for instance, that we go into the garden on a bright summer morning, when the dewdrops lie on everything around us, and sparkle in the sunshine; how often in such a case do we think that in a little while the sunshine will dry up the dew? Or, if we walk in sight of the sea at evening when the moon is overhead, do we always think of the tide, which the moon is at that moment causing? Obviously not, yet in both these cases the causes are immediately present to the senses, and their necessary effects are perfectly well known.

So much for the allegation that the cause always suggests the effect. We must now consider the relation in its reverse aspect, and inquire whether the effect always suggests the cause. Suppose we are sitting by the window, and see a man walking by. We look at the man himself, and perhaps make some remark about his appearance or his character; but do we think of the contraction of the muscles of his legs, which is the cause of his walking? It may be said, perhaps, that there is another cause behind the muscles, namely the man's will, and that this is to be regarded as the real cause of his walking. Neither, as a rule, do we think of the man's will; we see people go by, and meet them in the street, without connecting their walking with any cause whatever. As another example, take the ascension of smoke in the air. The cause of this is the superior weight of the air, which buoys up the smoke, and forces it to rise; but do we usually think of this cause, or of any cause, when we see the smoke ascending? Again, it is generally known, I suppose, that the cause of daylight is the sun; but do we always think of the sun when we see daylight around us? Even when daylight is dawning, we do not, as a rule, think of the sun's agency in the matter, though we well know that his approach to the horizon is the sole cause of the increasing light. Evidently, then, the effect does not always, nor usually, suggest its cause.

It is needless to dwell on the subject any further. The above examples and arguments are enough to convince any candid mind that the law of inseparable association, which Hume and his followers have tried so hard to establish, is a pure fiction, and without any foundation in fact. But a merely occasional association of ideas cannot generate belief in an invariable and necessary order of nature; and thus the empirical theory of causation breaks down entirely.

I must now go further still, and point out that the causal association, which, though not invariable, is nevertheless one of the principal factors of our intellectual life, cannot even be formed without a previous knowledge of causation. An example, I think, will make this evident. Suppose that I observe a certain object *A* followed by another object *p*, which is in fact the effect of *A*. At the same time that I observe *A* I also notice *B* and *C*, and at the same time with *p* I observe also *q* and *r*; yet none of these four objects is connected with *A* by any relations except those of time and space. Suppose now that in some other instance I observe *A* again; if I already know what causation is, and if I noticed in the previous case that *A* was the cause of *p*, it is quite likely that on seeing *A* the second time I shall think of its effect *p*, especially if I took an interest in the action of *A* in the first instance. But if I have no knowledge of causation, there is no reason why *A* should suggest *p* rather than *q* or *r*, *B* or *C*; hence there is only one chance in five that I shall think of *p* at all. In other words, there is nothing to differentiate *p* from the other concomitants of *A*, and thus the causal association cannot even be started. It is no answer to this reasoning to say that we should be likely to notice the sequence of *A* and *p* in repeated instances, while we should not so often, if ever, notice *A* in company with any of the other objects. For repeated instances have no effect on the association of ideas unless they are recollected; and the above considerations go to show that it is only by chance that the sequence of *p* upon *A* will be recollected. Yet the association between the ideas of cause and effect is unquestionably formed in infancy; and therefore our knowledge of causation must be acquired at the beginning, or very near the beginning, of our conscious existence.

If now the reader asks me what causation is, I reply that I think it is a simple, unanalyzable relation, not derived from anything else nor resolvable into anything else. It is not invariable sequence merely, but necessary sequence. The element of necessity is inexpugnable, and it is, moreover, the essential element in the case ; and any theory which ignores it or tries to explain it away is not, properly speaking, a theory of causation at all. If we analyze the complex relations in the world around us, we must, when our analysis is complete, arrive at certain relations that are simple and unanalyzable, for if there were no simple relations there could be no complex ones ; and that the relation between cause and effect is such a simple one, the whole history of philosophy thus far has tended to show. Being thus simple and primordial, causation cannot be defined nor explained, and no proof of the law that everything that begins to exist must have a cause, can be given or required. Of course, any man is free to analyze the relation if he can, but it is not likely that any one hereafter will succeed where thinkers so able as Hume and Mill conspicuously failed.

JAMES B. PETERSON.